

REMARKS

The Examiner has indicated that the previously submitted information disclosure statement of March 20, 2007 fails to include a concise explanation of the relevance. The undersigned has confirmed via telephone on July 30, 2007 that the above non-compliance applied only to a single non-patent literature document, JP Office Action dated December 17, 2006, which cites the four Japanese patent documents. Incidentally, these four Japanese patent documents have been submitted with a corresponding English abstract and have been all considered by the Examiner.

The Examiner has objected to claims 12 through 24 and 27 through 50. The Examiner has rejected claims 1, 4 through 10, 12 through 14, 17 through 22, 27, 30 through 36, 38 through 40 and 43 through 48 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. The Examiner has rejected claims 2, 15, 16, 25, 26, 28, 41, 42 and 51 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. in view of Saito et al. The Examiner has rejected claims 24 and 50 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. in view of Shimizu et al. However, the Examiner has indicated allowable subject matter in claims 11, 23, 37 and 49 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the above amendments and the following remarks, the Applicants respectfully submit the Examiner to reconsider the pending objections and rejections.

The Claim Objections

The Examiner has objected to claims 12 through 24 and 27 through 50. Although the background of the invention clarifies that an image photo sensor includes a CCD, the use of plural image sensors is changed to a single image sensor. As the Examiner has kindly pointed, claims 12, 27 and 38 have been amended to clarify the subject matter

limitations. Accordingly, the Applicants respectfully submit that the objections to claims 12 through 24 and 27 through 50 should be withdrawn.

The Rejections under 35 USC §103

The Examiner has rejected claims 1, 4 through 10, 12 through 14, 17 through 22, 27, 30 through 36, 38 through 40 and 43 through 48 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. The Examiner has rejected claims 2, 15, 16, 25, 26, 28, 41, 42 and 51 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. in view of Saito et al. The Examiner has rejected claims 24 and 50 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. in view of Shimizu et al.

According to the Examiner, the Hieda et al. reference discloses every element of independent claims 1, 12, 27 and 38. The Examiner points out that the Hieda et al. reference discloses the subject matter limitations with respect to FIUGRES 1 and 14. Although the Examiner concedes that the Hieda et al. reference fails to disclose, teach or suggest that the chroma and luminance values are generated and estimated for each pixel as claimed, he takes Office Notice for chroma and luminance data generation to obtain color image data without losing resolution. In view of the following remarks on the newly amended independent claims, the Applicants respectfully request the Examiner to consider the following distinctions over the above disclosures in the cited prior art reference.

Independent claims 1, 12, 27 and 38 explicitly recite the patentably distinct features over the cited prior art reference. Independent method claim 1 now explicitly recites “a predetermined spatial pattern of color-component specific photo elements in a sensor” and “adjusting the chroma values according to the specific spatial pattern of the color-component specific elements.” Similarly, independent system claim 12 explicitly recites “a color image sensor having multiple sets of a predetermined spatial pattern of

color-component specific photo elements for generating color image data” and “an interpolated chroma value generator connected to said color image sensor for generating interpolated chroma values according to the spatial pattern.” Independent method claim 27 also explicitly recites “a predetermined spatial pattern of color-component specific filter elements in a sensor” and “adjusting the chroma values according to the specific spatial pattern of the color-component specific elements.” Lastly, independent system claim 38 similarly claims “a color image sensor having a predetermined spatial pattern of color-component specific photo elements for generating color image data” and “an interpolated chroma value generator connected to said color image sensor for generating interpolated chroma values for each of the pixels according to the spatial pattern.” Each of independent claims 1, 12, 27 and 38 explicitly requires “spatial pattern” of the “color-component specific photo elements” or “color-component specific filter elements.”

The above explicit recitations require that the chroma values are adjusted for each pixel according to “the predetermined spatial pattern of the color-component specific photo elements” or “the color-component specific filter elements.” [emphasis added.] In other words, the chroma values depend upon the specified spatial pattern of the color-component specific elements, and the intensity value is subsequently estimated.

In contrast, the Hieda et al. reference fails to disclose, teach or suggest the above patentable features. The Hieda et al. reference discloses several preferred embodiments for generating a corrected luminance signal by base-clipping at least one of two color difference signals (see Abstract). The two color difference signals, R-Y and B-Y signals are generated from color modulation components CR and CB and a luminance component Y from the digital single CCD output. A complementary color type single-plate CCD has a fixed spatial pattern. The Hieda et al. reference fails to disclose, teach or suggest the adjustment of the chroma value based upon the spatial pattern of the color-component specific photo elements as required by the current invention.

Dependent claims 4 through 10, 13 through 14, 17 through 22, 30 through 36, 39 through 40 and 43 through 48 ultimately depend from independent claims 1, 12, 27 or 38 and incorporate the above patentable features.

Furthermore, the Examiner has cited additional prior art for rejecting other claims. For the rejection of claims 2, 15, 16, 25, 26, 28, 41, 42 and 51 under 35 U.S.C. §103(a), the Examiner has alleged obviousness over Hieda et al. in view of Saito et al. Similarly, the Examiner has rejected claims 24 and 50 under 35 U.S.C. §103(a) as allegedly being obvious over Hieda et al. in view of Shimizu et al. Among these claims, claims 25, 26 and 51 are independent claims.

By the same token, these independent claims explicitly recite the similar patentable features. Independent claim 25 now explicitly recites “a predetermined spatial pattern of color-component specific filter elements on a single plane in a sensor” and “adjusting the chroma values according to the specific spatial pattern of the color-component specific elements.” Similarly, independent claim 26 also explicitly recites “a sensor having a specific unit spatial pattern of color-component specific photo elements” and “adjusting the chroma values according to the specific unit spatial pattern of the color-component specific elements.” Lastly, independent claim 51 explicitly recites “a predetermined spatial pattern of color-component specific filter elements in a sensor” and “adjusting the chroma values according to the predetermined spatial pattern of the color-component specific elements.”

The combined disclosures still fail to disclose, teach or suggest the above patentable features. As already discussed above, the Hieda et al. reference fails to disclose, teach or suggest the adjustment of the chroma value based upon the spatial pattern of the color-component specific photo elements as required by the current invention. Neither the Saito et al. reference nor the Shimizu et al. reference alone or in

combination disclose, teach or suggest the spatial pattern of the color-component specific photo elements as required by the current invention.

Dependent claims 2, 15, 16, 24, 28, 41, 42 and 50 ultimately depend from independent claims 1, 12, 27 or 38 and incorporate the above patentable features.

Therefore, it would not have been obvious to one of ordinary skill in the art to provide the above patentable features as explicitly recited in independent claims 1, 12, 25, 26, 27, 38 and 51 based upon the cited reference even in view of the Official Notice or the additional cited references alone or in combination.

Based upon the above reasons, the Applicants respectfully submit that the rejection of the above claims under 35 USC §103 should be withdrawn.

Conclusion

In view of the above amendments and the foregoing remarks, Applicants respectfully submit that all of the pending claims are in condition for allowance and respectfully request a favorable Office Action so indicating.

Respectfully submitted,

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